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ABSTRACT

Children with learning or adjustment problems can profit from carefully managed application of educational technology. Success in such a venture depends on the quality of the microcomputer, the software, and the operator of the system. A model analyzing this triadic interaction notes variables associated with the computer (hardware resources, software selection, micro-management), personality (teacher characteristics, group and social factors, motivation), and cognition (intellectual abilities, developmental level, and practice). Problems with micro-management and with inappropriate software are noted, and it is suggested that at present the microcomputer is an expensive item that is not the most cost-effective microelectronic aid. (CL)

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THE BRITISH PSYCHOLOGICAL SOCIETY

DIVISION OF EDUCATIONAL AND CHILD PSYCHOLOGY

ANNUAL REFRESHER COURSE 3 - 6 JANUARY 1984

UNIVERSITY OF SOUTHAMPTON

Theme: The Psychologist and the Microcomputer

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Final Title: "Educating Maladjusted Pupils with Microcomputers"

Summary of Presentation

The structured use of microelectronic aids supplements the education of low achievers. It provides additional opportunities to increase competence in presentation, basic literacy and numeracy by motivating, developing confidence and reducing classroom management problems.

The problems of computer management; who goes on and does what for how long, are partially solved by the use of an objectives model. Emphasis needs however, to be placed on the extension of the dyadic teaching/learning interaction of pupil and machine into triadic interaction of pupil, machine and teacher.

Machine-experienced material needs synthesising into meaningful learning, most effectively achieved by pupil/teacher interaction and integrated into the satisfaction of wider educational aims. The intention is to avoid the degeneration of the machine-experience into something less than education.

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The current educational climate discriminates in favour of the development of microelectronic education and it is important that the staff responsible for the implementation of aspects of this technology co-ordinate what is available and develop software appropriate to their children's needs. The purchase of computer hardware is frustrated by the speed of technological development and the incompatibility of systems, languages and dialects. This position is unlikely to improve.

The credibility of the acquired micro as an aid to educating disturbed children lies in the selection and management of appropriate software.

"The Need for Agreed Practices in Programme Documentation" (Loughlin 1983) details a quick, reliable method of evaluating and cataloguing programs. It indicates a minimum standard of documentation in order to avoid the purchase of poor quality programs characterised by duplication, drill and educational irrelevance.

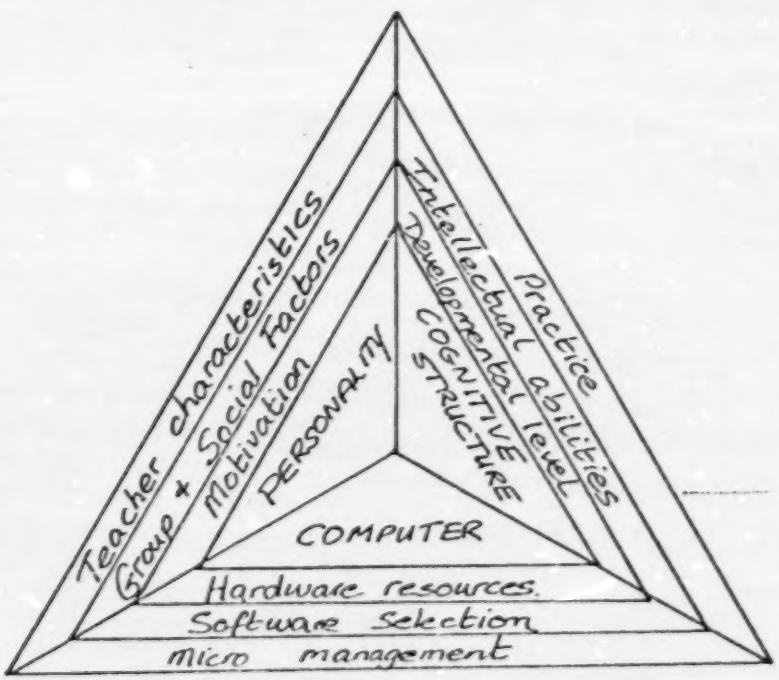
Good software capitalises on TIME, one of the most influential factors in education and achievement. Children classified as maladjusted are frequently low attainers. If a child is functioning five years below his chronological

age, theoretically he needs to do five days work in one, in order to catch up. Lack of time produces compromises. What must not be compromised is the planning of effective progress towards goals and attempts to find strategies for achieving them. Good software can maximise time as a resource, reinforcing skills, concepts and behavioural objectives that have been designed to engineer and sequence success. Maladjusted children are not all slower learners, or quick forgetters, they encompass the full IQ range. These children exhaust and expose the inadequacies of poor software, and build skills, competence and confidence quickly when appropriate software is skillfully presented.

The skillful management of the micro is a problem solving exercise involving creativity (or a creative activity involving problem solving!). It is dynamic. The quality of what is provided depends on the quality of the micro, the software and the ability of the one who operates the system as a gestalt. A recipe of micro-management is as obtainable as the Alchemical Elixir. Efficacious and beneficial practices relating to the education and treatment of disturbed children cannot be definitively prescribed. Approaches and emphases differ according to each school ethos, but the elements that one can pay attention to, in order to capitalise on the medium can be identified.

The variables of learning can be subdivided into cognitive and affective/social domains. Within these kingdoms are factors which differ in the degree to which they can be manipulated.

A model can be presented in the following way:



VARIABLES IN TRIADIC INTERACTION AND THEIR MANIPULABILITY

Micro-management: deciding who does what and why, links with the cognitive domain, which predisposes it to techniques of task-analysis and educational technology, ie the systems approach to teaching. The focus is on a program, whose credibility lies in the relevance of the 'experience' in relation to educational aims and post school life. A successful program is measured by analysing;

(i) terminal objectives
(ii) enabling objectives
(iii) the nature of pupil responses in relation to (i) and (ii)
(iv) the amount of practice given to establish meaningful learning in (i) and (ii)

The intent of the program is to provide instructional material with sufficient practice to impact upon the user's intellectual ability, build on his current level of development and produce changes in his cognitive structure. The outcome measured is the emergence of relatively permanent changes of behaviour congruent with enabling and terminal objectives.

Example:

Paul can
- position with accuracy the apostrophe to show possession and contraction.
- add five digit numbers to five digit numbers including decimals and carrying.

Analysis in the cognitive domain enables teachers of problem children to assess the degree to which the machine activity is education as opposed to occupation.

The cognitive model forms the basis of a direct attack on specifics, but disturbed pupils do not benefit from an over-reliance on an educational technology approach; the model is mechanistic. The production of sophisticated pupil profiles, registers of behavioural objective sequences, and indices of resources and objectives view the disturbed child as an individual, with individual needs, requiring individualised programs and an individualised curriculum BUT the skillful manager of the micro must see his pupils not only as individuals, ie as units in a category of intelligence, but as developing people. Learning and teaching is being attempted involving human beings and computers, the art of skillful management evaporates in a mist of method. Pupils have personal needs, requiring personalised programs and a personalised curriculum. The gestalt of skillful management is a dynamic balance between the art and science of learning and teaching. For educational purposes cognitive development cannot be equated with personal development and over dependence on science does not cultivate all essential human qualities.

Apparatus, problem and pupil are located in a social setting, central to which is the teacher and his characteristics. His enthusiasm for the new method is a potent factor in the effective use of the new medium. External constraints determine his class group(s) and he must respond to these in order to create the optimum environment. The teacher is the key, building on the motivation produced by the medium itself, and generating affiliative, ego-enhancement and cognitive drives. Style, manner, attitudes and feelings are under his conscious control to a large extent, and are therefore manipulable.
(3) "Motivation is the GO of personality" (Allport), centred in the present, the now of the classroom. The teacher has access and influence upon it to entice a low attainer to learn, to please, to build confidence and self-esteem, to produce a drive in an activity/behaviour that becomes self reinforcing.

Motivation acts as a catalyst to changes in learning and personality and is inevitably linked to concepts of education and treatment. The interaction of teacher, learner and micro is a dynamic triad which can build on cognitive foundations, constructing a new teaching relationship reducing both negative attitudes and lapses into a failure/misbehaviour cycle.

Micro-management involves consideration of the degree of teacher involvement. He is engaged in question/answer dialogue, in organising and advising small groups or in demonstrating/instructing. Classroom activity is individual, group, or a shared enterprise with the teacher. Teaching is primarily based on feedback from pupil or machine, and the teacher is frequently engaged in 'contextual syntheses' ie facilitating the assimilation and accommodation of new material into the pupil's existing cognitive structure.

(4) Kemp (1983) sees the proliferation of kits, modules and AV aids that creep into the curriculum for emotionally disturbed adolescents as cosmetic patchworks to a curriculum needing surgery. The micro is not a teacher proof aid, nor should its use degenerate into something less than education. The micro is not an easy option for teacher or pupil.

Problems with micros centre on loading programs and the quality of software. The biggest problem arises from the fact that in order to benefit from the micro a child has to be able to read. The reading and working ages of programs and pupil's abilities are not always co-ordinate, (the language of mathematics frequently outstrips the complexity of the arithmetic). Language and reading
(5) ability need to be matched to the programme provided. "Reading and the ability to comprehend what is displayed on the screen is related to the speed at which information appears and also the amount." (Loughlin 1983 b) Many pupils read the last line of screen display which says . . . PRESS RETURN TO CONTINUE!

The micro will come to play an increasingly useful role in the education of maladjusted pupils. The lack of quality software available at present leads many to give it the 'doubt of the benefit' but time and teachers will make or break it.

My experience leads me to the conclusion that the micro is an expensive item and at present not the most cost effective micro-electronic aid. The 'Little Professor' marketed by Texas Instruments (approx £10) was integrated with conventional teaching at Furrowfield School under the direction and guidance of Mr D V Moseley, Reader in Applied Psychology at Newcastle University. The 'Little Professor Programme' was engineered to increase competence and motivate, developing skills in presentation and arithmetic. The programme has been in operation for over four years.

DATA:

Sample 40 Boys aged 9 - 16 'Maladjusted'

Mean Addition age	1981	9 years	1982	12	years
" Subtraction age	1981	8¼ years	1982	10½	years
" Multiplication age	1981	8 years	1982	11	years
" Division age	1981	7 years	1982	10	years

Norman France Profile of Mathematical Skills (Nelson/NFER)
Testing interval 12 months.

Statistics, exercise books and positive pupil attitudes confirm the programme as an educational success. The educational/child psychologist can also benefit from its inclusion in his 'box-of-tricks'.

The educational aims and goals are the same for normal and maladjusted pupils, but the help that the latter need in attaining them may be different. The computer can be used as part of that help, but it is only part of the help and it must be managed wisely.

REFERENCES

(3) Allport, G W (1937) 'Personality' NY Holt

(4) Kemp, A (1983) The development, implementation and evaluation of a module designed to increase competence in 'money' with underachieving adolescents. Unpublished Dip SE study. New College Durham.

(2) Loughlin, A (1982) Furrowfield School Programmes for Texas Instruments, Gateshead MBC, Tyne and Wear

(1) Loughlin, A (1983) The Need for Agreed Practices in Programme Documentation in Conference Proceedings

(1983a) The Computer as an Aid for those with Special Needs Department of Education Services, Sheffield City Polytechnic

(5) Loughlin, A (1983b) "The Computer in English Literature" in Conference Proceedings, see above.

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